

IN THE DRAWINGS

The attached sheets of drawings includes changes to Figures 31-38. These sheets, which includes Figures 31-38, replace the original sheets including Figures 31-38.

Attachments: Replacement Sheets

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-36, 52-87, 103-138 and 54 are pending, Claims 37-51, 88-102, 138-153 and 155 having been withdrawn from consideration, and Claims 1, 2, 52, 103 and 154 having been amended by way of the present amendment. Support for the amendments to each of the independent claims is found throughout the specification, for example at page 26, lines 9-12 (regarding the absence of an access point) and the network being an ad hoc network (page 26, line 12, for example). Therefore, no new matter is added.

In the outstanding Office Action, Figures 31-38 were objected to as failing to include a legend; the Title of the Invention was objected to; Claims 2, 52, 103, 154 were rejected under 35 U.S.C. §112, second paragraph; Claim 154 was rejected under 35 U.S.C. §101; Claims 1-4, 6-14, 16, 18-21, 24-26, 28-32, 34-36, 52-55, 57-65, 67, 69-72, 75-77, 79-83, 85-87, 103-106, 108-116, 118, 120-123, 126-128, 130-134, 136-138 and 154 were rejected as being anticipated by Benveniste (U.S. Patent Publication No. 2003/0174690); Claims 5, 15, 17, 22, 23, 27, 56, 66, 68, 73, 74, 78, 107, 117, 119, 124, 125 and 129 were rejected as being unpatentable over Benveniste in view of Khun-Jush et al. (U.S. Patent Publication No. 2005/0054294, hereinafter Khun-Jush); and Claims 33, 84 and 135 were rejected as being unpatentable over Benveniste in view of Gubbi (U.S. Patent No. 6,934,752).

In reply the drawings have been amended as requested. Also, the Title has been amended as requested.

Claims 2, 52, 103, 154 have all been amended consistent with 35 U.S.C. §112, second paragraph. Moreover, Applicant has adopted the suggestion made by the Office at page 3 of the Office Action. It is believed that each of these claims complies with 35 U.S.C. §112,

second paragraph. However, if the Examiner disagrees, the Examiner is invited to telephone the undersigned to identify mutually agreeable claim language.

Claim 154 has been amended consistent with 35 U.S.C. §101.

Amended Claim 52 is directed to a wireless communication apparatus that is operated in a decentralized distributed communication environment constructed such that respective communication stations transmit beacons indicative of information concerning a network with each other at a predetermined time spacing. Among other things, the claimed apparatus uses communication means for transmitting and receiving wireless data, where the decentralized distributed communication environment operates without an access point serving as a master control station. Support for this amendment is found throughout the specification, for example at page 2, lines 8-13; page 16, last four lines; and page 26, lines 9-12, for example. Furthermore, the claimed apparatus includes timing control means for controlling a beacon transmission timing at which the communication means transmits beacons as part of an ad hoc network. Support for the timing control means is found at least at item 109 (timing control unit for example described at page 30), as well as page 28, last paragraph. Furthermore, the aspect of the apparatus being part of an ad hoc network, is supported throughout the specification, for example at page 26, line 12.

The amended claim language regarding an “ad hoc network”, and “without an access point serving as a master control station”, was not expressly included in original Claim 52. However, it was implicitly included in the language “decentralized distributed communication environment”. Claim 52 has been amended to expressly include this language so there is no question that the claimed apparatus operates without an access point, and is part of an ad hoc network. This is relevant because the main reference of Benveniste operates as part of a basic service set (BSS) that requires an access point, as will now be discussed in more detail.

Page 2, paragraph 2 of the specification explains that there are two kinds of basic service set (BSS) systems: a first one in which a master control station such as an access point exists; and an independent BSS that is defined by the ad hoc mode composed of only a plurality of mobile stations, without an access point (see also first full paragraph of page 26).

In particular, the specification expressly states “this specification principally considers the gist of the present invention in which the network is operated without application of a master control station such as the access point, and hence the infrastructure mode will not be described any more” (page 3, second full paragraph). Instead, the Independent BSS (IBSS) in the ad hoc mode does not use an access point and conventionally, as recognized by the present inventors, suffers from a number of problems such as the six problems discussed at pages 13-16 of the present specification. After recognizing the source of these problems, the present inventors recognized that the problems can be overcome by having communication stations become aware of their existence by transmitting beacon information to other neighbor communication stations at a predetermined time space which also lets the other communication stations become aware of the network configuration (see, e.g., second full paragraph of page 18). Configuring the beacons in this way allows a new communication station to know when to join the network while avoiding collisions, for example.

The outstanding Office Action asserts that Benveniste discloses all the elements of Claim 52. Applicant respectfully traverses this assertion. As with the present specification, Benveniste recognizes that there are both BSS systems and IBSS systems, of which there is no access point [0019]. Benveniste’s system relies on an access point (AP) (see station 3 of Figure 1 and [0065]) to provide coordination between stations, and thus allowing the effective use of a Global Channel Release (GCR), which is the main point of Benveniste. Benveniste is aimed at the problem of a particular cell (e.g., cell B) having difficulty accessing a channel in which high priority data captures the channel, essentially blocking

other medium and lower priority transmissions from occurring (see, e.g., [0068], and Figure 2, for example). The solution created by Benveniste is a GCR, in which “neighborhood capture” can be eliminated by requiring all stations to release the channel at specified times [0072]. In order for this to operate, all the stations must be synchronized [0079] which is the function of the access point 3 [0082].

The outstanding Office Action apparently has not given weight to the claim language of “decentralized distributed communication environment”. In order to emphasize the significance of this language and distinguish conventional systems that include access points, Claim 52 has been amended to expressly require that the decentralized distributed communication environment operates without an access point serving as a master control station and the beacons are transmitted as part of an ad hoc network.

The outstanding Office Action does cite paragraph [0073] in Benveniste as describing all stations in an IBSS prepare to transmit beacon frame packets at a certain timing [0073]. However, the wireless station 3 as shown in Figure 1A, and discussed at [0073] rely on an access point as discussed at [0065], and as shown in Figure 7. Moreover [0065] explains that station 3 serves as the “AP [access point]” for cell A. Also [0073] is the language cited in the Office Action to support the notion that Benveniste uses an IBSS configuration with its technique for controlling beacon transmission timing (Office Action, page 5, last paragraph). However, wireless station 3 is an access point in Figure 1A (see [0065]). Benveniste also requires that all stations in a cell be synchronized [0079] and that the management of timing offsets can be handled by special frames, such as a superframe timestamp field included in probe response frame. However, even this example in Benveniste requires the use of access points [0079].

Furthermore, Claim 52 also requires timing control means for controlling a beacon transmission timing at which the communication means transmits beacons. The outstanding

Office Action asserts that paragraph [0073] in Benveniste teaches this feature. Applicant traverses this assertion. The claimed timing means controls the beacon transmission timing by having one of the neighboring cells learn timings from other cells by the neighboring cell reporting in its beacon the beacon timing arrangement for the ad hoc network. Neither [0073] of Benveniste nor any other aspect of Benveniste teach or suggest this feature of having the different stations teach respective timing or beacon transmission schedules for the network as is done with the timing control means. As such, it is respectfully submitted that Claim 52, as amended, is patentably distinguishing over Benveniste.

It is respectfully submitted that each of the other claims alleged to have been anticipated by Benveniste is also patentably distinguishing over Benveniste. This applies to independent Claims 1, 103 and 154, as well as the claims that depend therefrom.

Selected of the dependent claims have been rejected over Benveniste in view of Khun-Jush. Khun-Jush is asserted for its transmitting information for prohibiting a neighboring station from transmitting data over a predetermined period. Assuming, *arguendo*, that Khun-Jush does in fact teach this feature, even this teaching in Khun-Jush does not cure the deficiency discussed above with regard to Benveniste and each of the independent claims. Therefore, no matter how Khun-Jush is combined with Benveniste, the combination does not teach or suggest all the features of the independent claims and therefore does not render obvious the rejected dependent claims.

Similarly, as Gubbi is asserted for its adding a preamble of a unique word to beginning of a packet transmission, even this feature in Gubbi does not cure the deficiency with regard to Benveniste discussed above. As a consequently, any combination of Bubbi in view of Benveniste does not teach or suggest all the features of Claims 33, 84 and 135.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-36, 52-87, 103-


138 and 154, is definite, eligible for patenting, and patentably distinguishing over the prior art. The present application therefore is believed to be in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

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